FIG.1

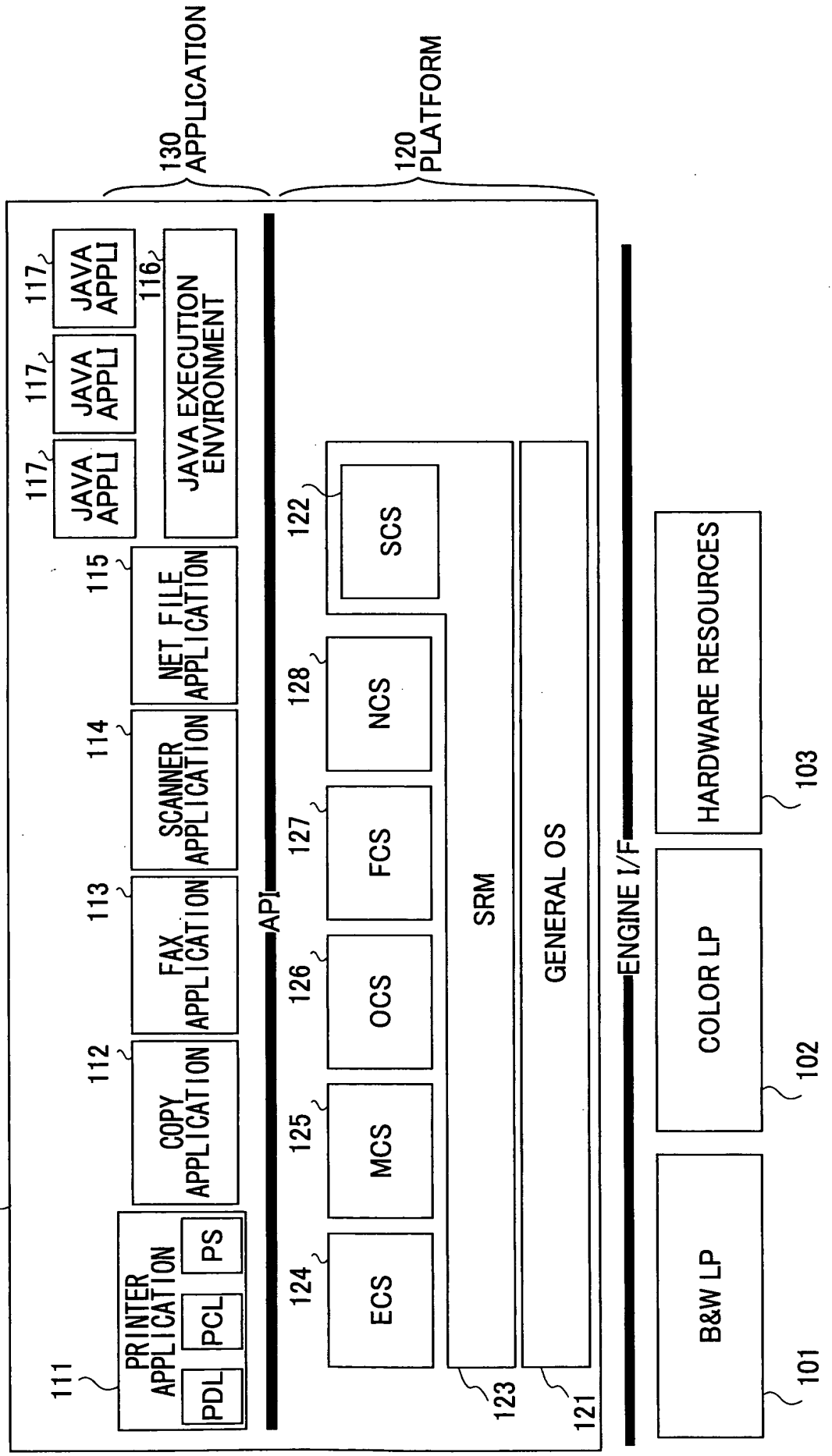

100 COMPOUND MACHINE
110 SOFTWARE GROUP
130 APPLICATION
120 PLATFORM
111
PRINTER APPLICATION
PDL
PCL
PS
112
COPY APPLICATION
113
FAX APPLICATION
114
SCANNER APPLICATION
115
NET FILE APPLICATION
116
JAVA EXECUTION ENVIRONMENT
117
JAVA APPLI
JAVA APPLI
JAVA APPLI
API
122
SCS
128
NCS
127
FCS
126
OCS
125
MCS
124
ECS
SRM
GENERAL OS
123
121
ENGINE I/F
HARDWARE RESOURCES
103
COLOR LP
102
B&W LP
101

FIG.2

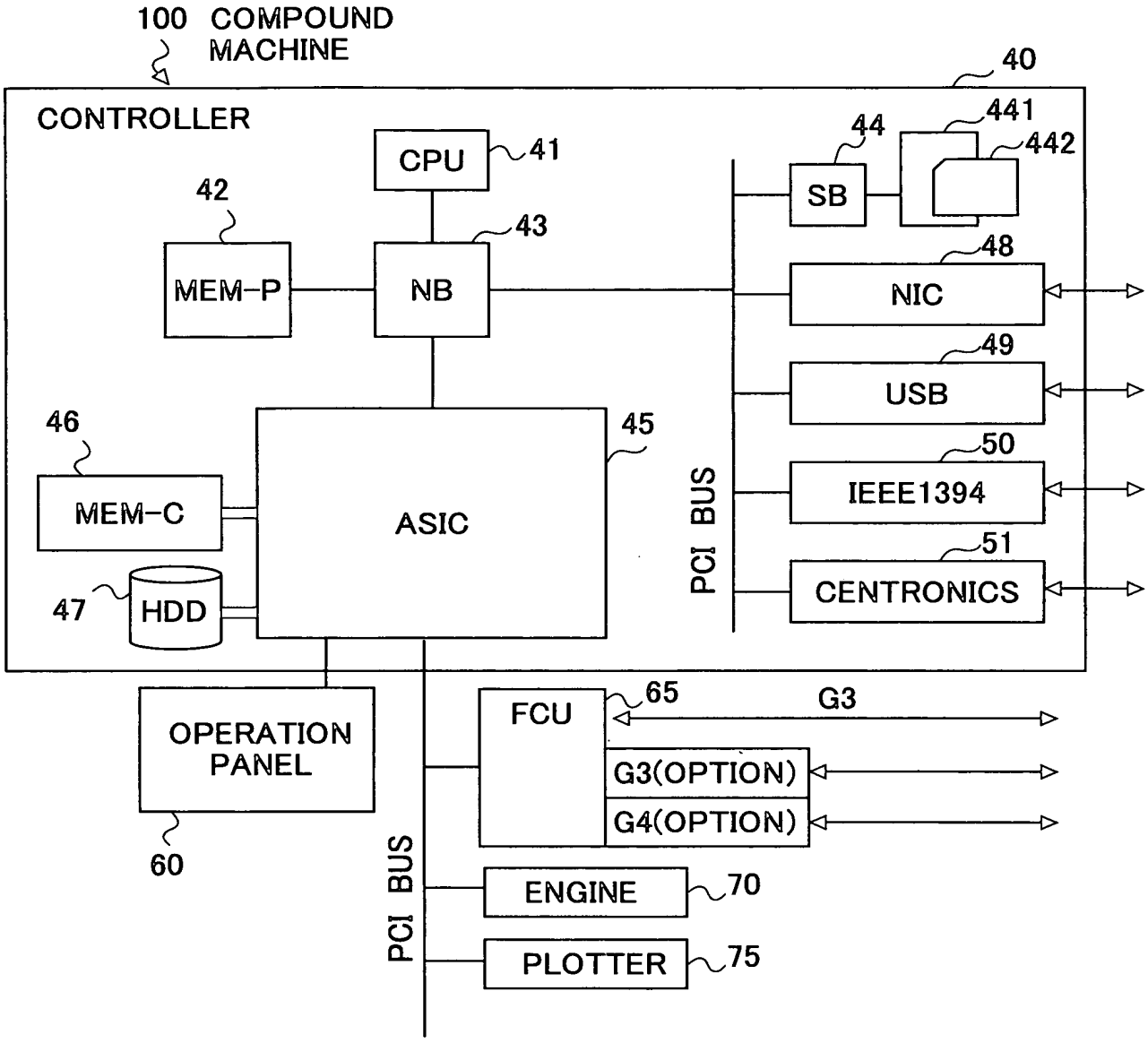

100 COMPOUND MACHINE
CONTROLLER
40
CPU
41
42
43
MEM-P
NB
44
441
442
SB
48
NIC
49
USB
46
45
MEM-C
ASIC
50
IEEE1394
PCI BUS
47
HDD
51
CENTRONICS
OPERATION PANEL
60
FCU
65
G3
G3(OPTION)
G4(OPTION)
PCI BUS
ENGINE
70
PLOTTER
75

FIG.3

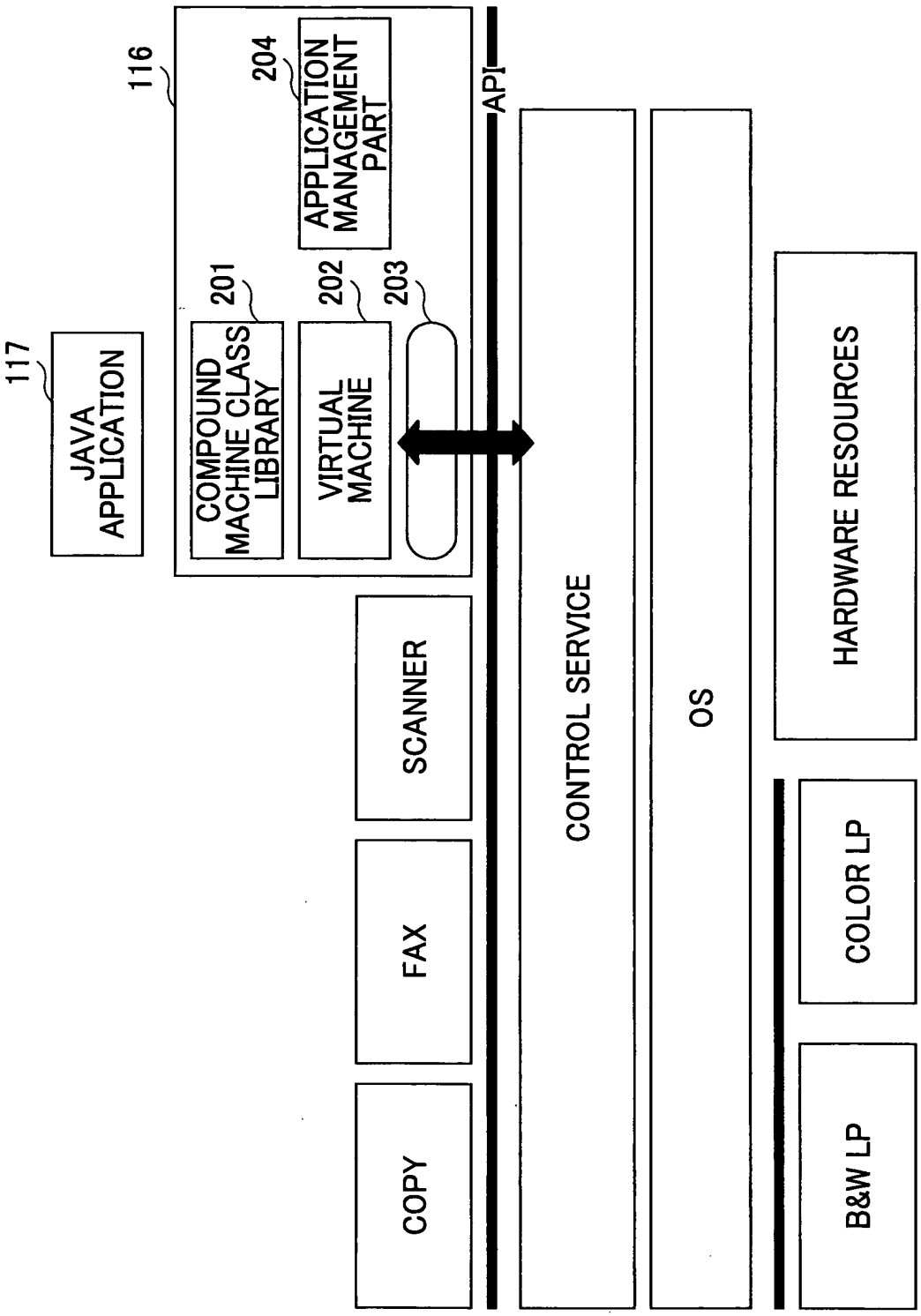

116
204
APPLICATION MANAGEMENT PART
201
202
203
117
JAVA APPLICATION
COMPOUND MACHINE CLASS LIBRARY
VIRTUAL MACHINE
API
SCANNER
CONTROL SERVICE
HARDWARE RESOURCES
FAX
OS
COLOR LP
COPY
B&W LP

FIG.4A

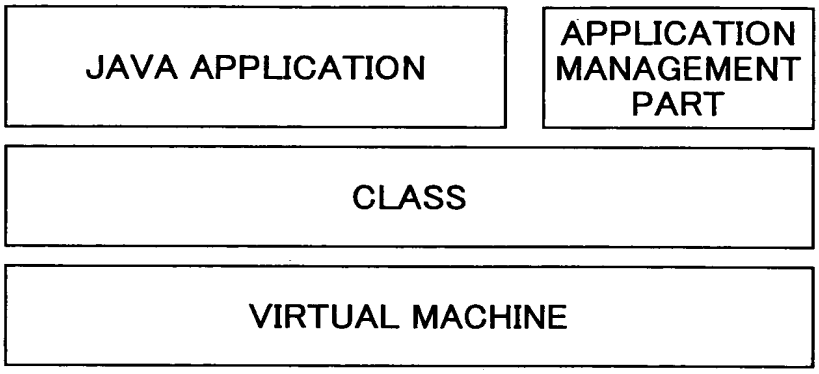

JAVA APPLICATION
APPLICATION MANAGEMENT PART
CLASS
VIRTUAL MACHINE

FIG.4B

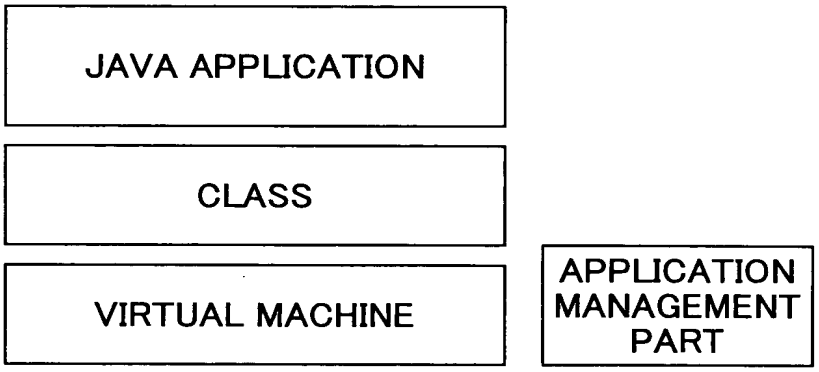

JAVA APPLICATION
CLASS
VIRTUAL MACHINE
APPLICATION MANAGEMENT PART

FIG.5

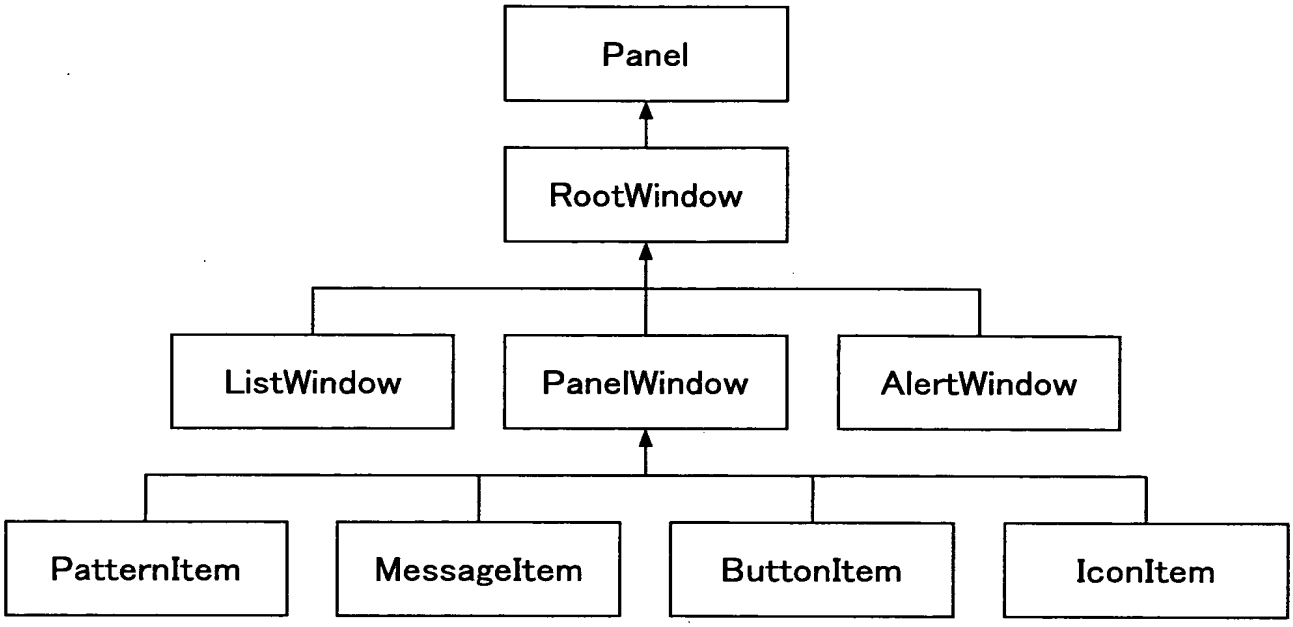

Panel
RootWindow
ListWindow
PanelWindow
AlertWindow
PatternItem
MessageItem
ButtonItem
IconItem

FIG.6

```
import java.lang.*;
import com.ricoh.gw.*;                                          //←(1)
public class UserApp extends GWApp                              //←(2)
{
    public static void main()
    {
        Panel panel = new Panel();
        Printer printer=new Printer();                          //←(3)
        PanelWindow mainwindow = new PanelWindow(panel.root());
        ItemString simple = new ItemString("Simple Printer"); //←(4)
        MessageItem salutation = new MessageItem(simple);
        salutation.setRect(100,10,100,10);
        mainwindow.addItem(salutation);
        ItemString inputstr = new ItemString("Get input filename...");
        ButtonItem inputButton = new ButtonItem();          //←(5)
        inputButton.setButtonShape(ButtonItem.BTN_ZAB);
        inputButton.setRect(100,100,100,100);
        inputButton.setWink(true);
        mainwindow.addItem(inputButton);
        inputButton.addChangeListener(                          //←(6)
            new GWChangeListener()
            {
                public void stateChanged(GWEvent e)
                {
                    String answer =
                        SoftKeyboardWindow.request(
                            "Input filename",
                            "", 256,
                            ItemString.LANG_ENGLISH_US      //←(7)
                        );
                    printer.printerDocument( new ItemString(answer) );//←(8)
                }
            }
        }
}
```

FIG.7

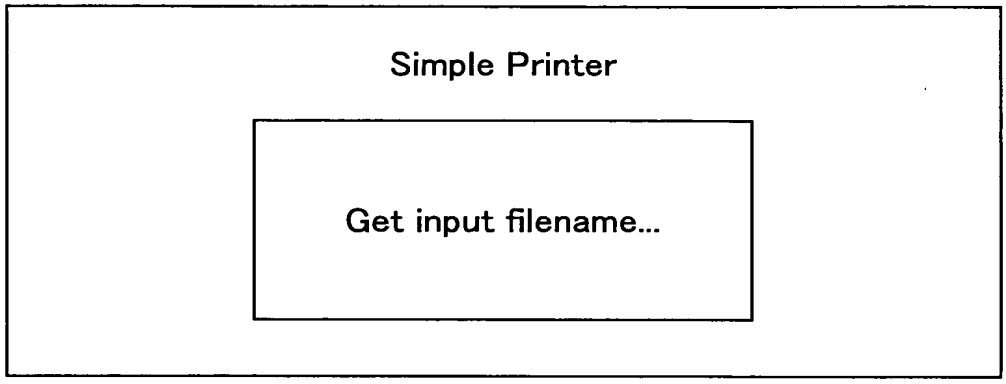


FIG.8

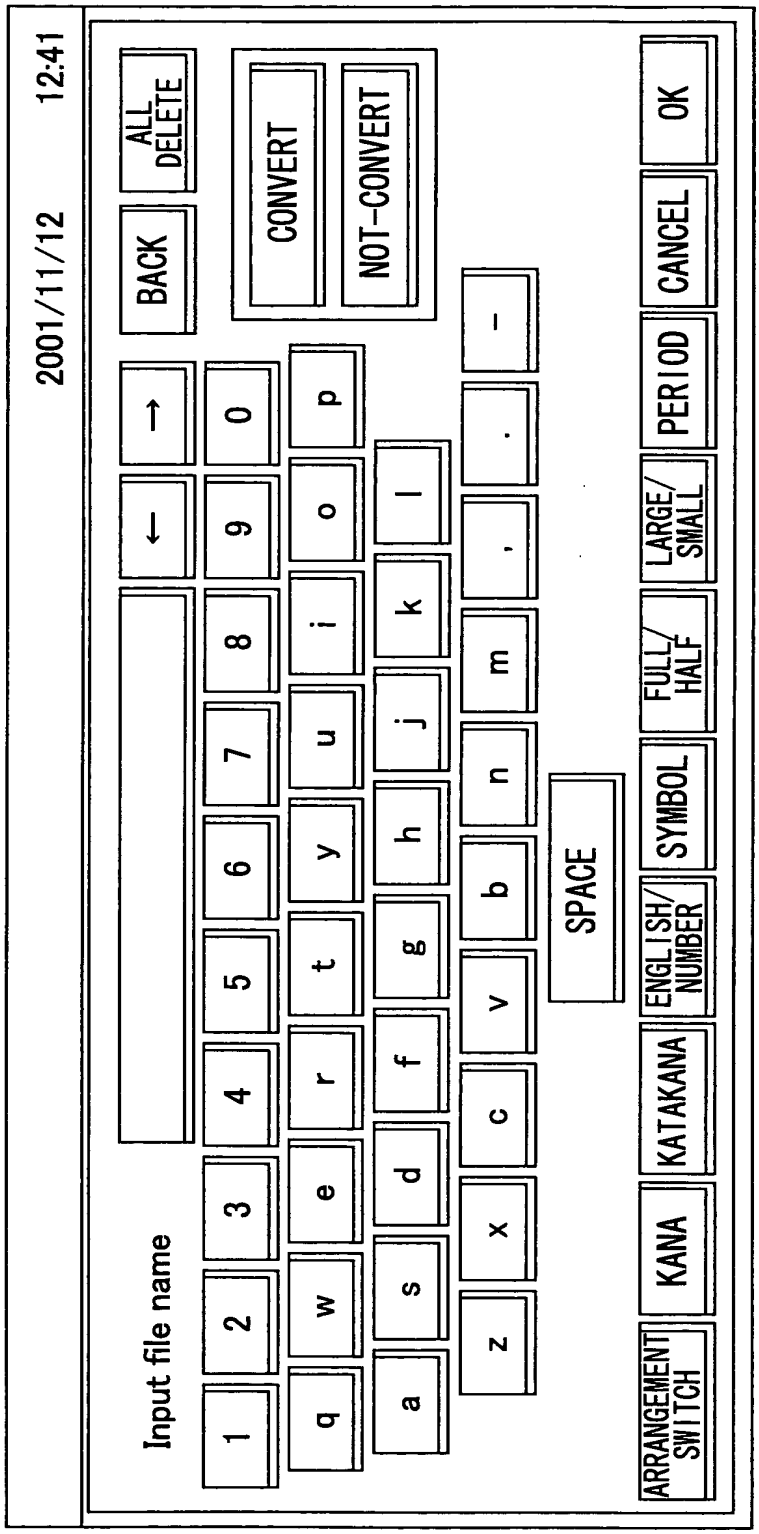

2001/11/12
12:41
Input file name
BACK
ALL DELETE
CONVERT
NOT-CONVERT
SPACE
ARRANGEMENT SWITCH
KANA
KATAKANA
ENGLISH/ NUMBER
SYMBOL
FULL/ HALF
LARGE/ SMALL
PERIOD
CANCEL
OK

FIG.9

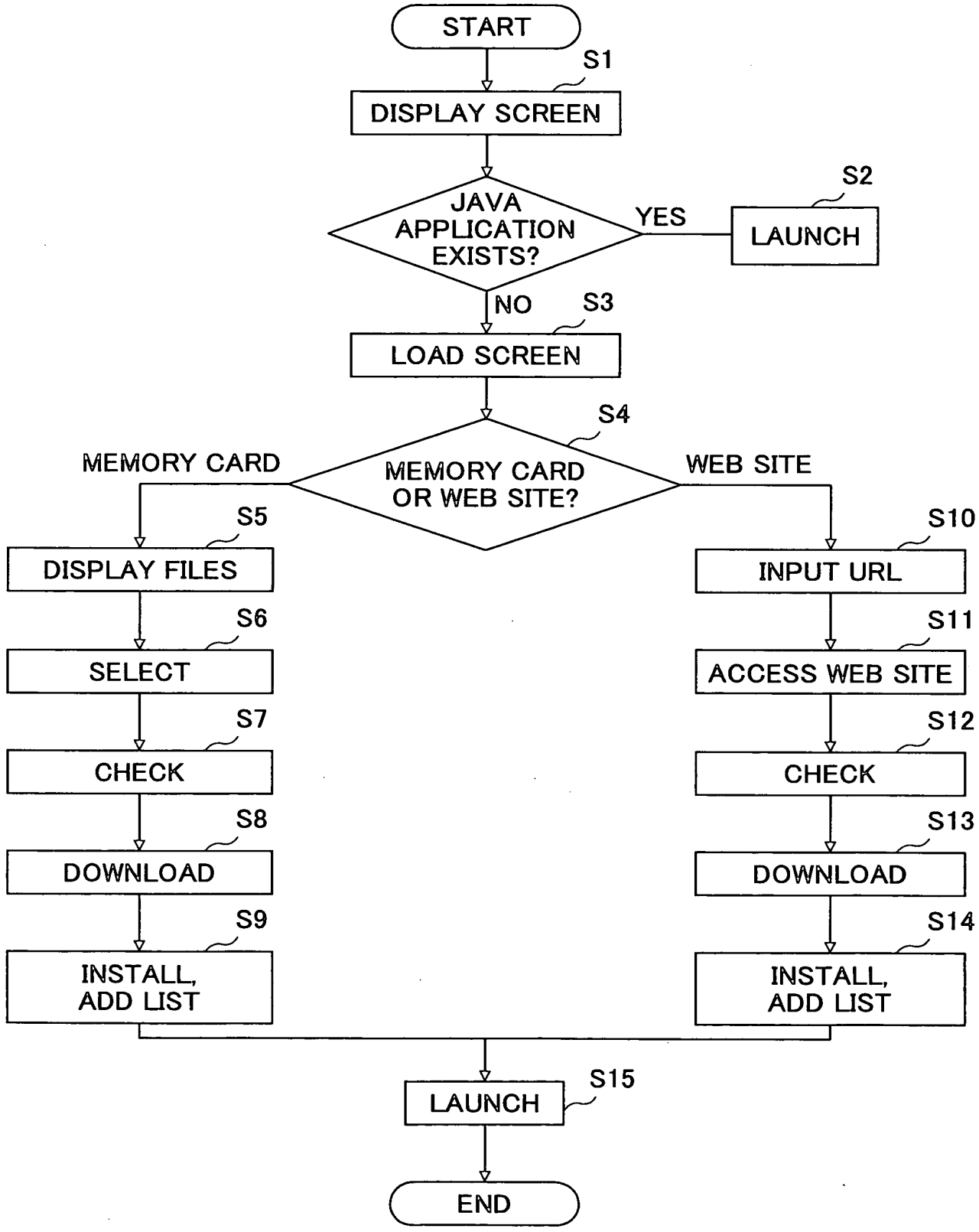

START
S1
DISPLAY SCREEN
JAVA APPLICATION EXISTS?
YES
S2
LAUNCH
NO
S3
LOAD SCREEN
S4
MEMORY CARD OR WEB SITE?
MEMORY CARD
WEB SITE
S5
DISPLAY FILES
S6
SELECT
S7
CHECK
S8
DOWNLOAD
S9
INSTALL, ADD LIST
S10
INPUT URL
S11
ACCESS WEB SITE
S12
CHECK
S13
DOWNLOAD
S14
INSTALL, ADD LIST
S15
LAUNCH
END

FIG.10

```
<?xml version="1.0" encoding="utf-8"?>
<! - - JNLP File for JSDK Demo Application - ->
< jnlp
  spec="1.0+"
  codebase="sdcard://jsdk/0123"
  href="jsdk_demo. jnlp">
  <information>
     <title> Jsdk Demo Application</title>                    1A
     <vendor>JSDK Providers Inc.</vendor>                     1B
   <telephone>092-441-####</telephone>                        1C
   <fax>092-411-####</fax>                                    1D
1  <product-id>0123456</product-id>                           1E
     <homepage href="docs/help.html"/>
     <description>JSDK Demo Application</description>
     <icon href="images/JSDK_demo. jpg"/>
     <offline-allowed/>
  </information>
  <security>
2       <all-permissions/>
  </security>
  <resources>
     < jsdk version="1.0"/>                                   3A
3    < jar hrel="JSDKdemo. jar" version="1.0.1"/>             3B
     <sub- jnlp="http://www.ricoh.co.jp/jsdk/ocr. jnlp"/>     3C
  </resources>
  <update mode="mail">
4    <mail address="xxx@yyy.zzz.co. jp"/>
  </update>
  <install mode="auto">
5    <destination path="sdcard:/jsdk/0123"/>
  </install>
6 <xlet-desc class="JSDKdemo" type="noGUI"/>
</jnlp>
```

FIG.11

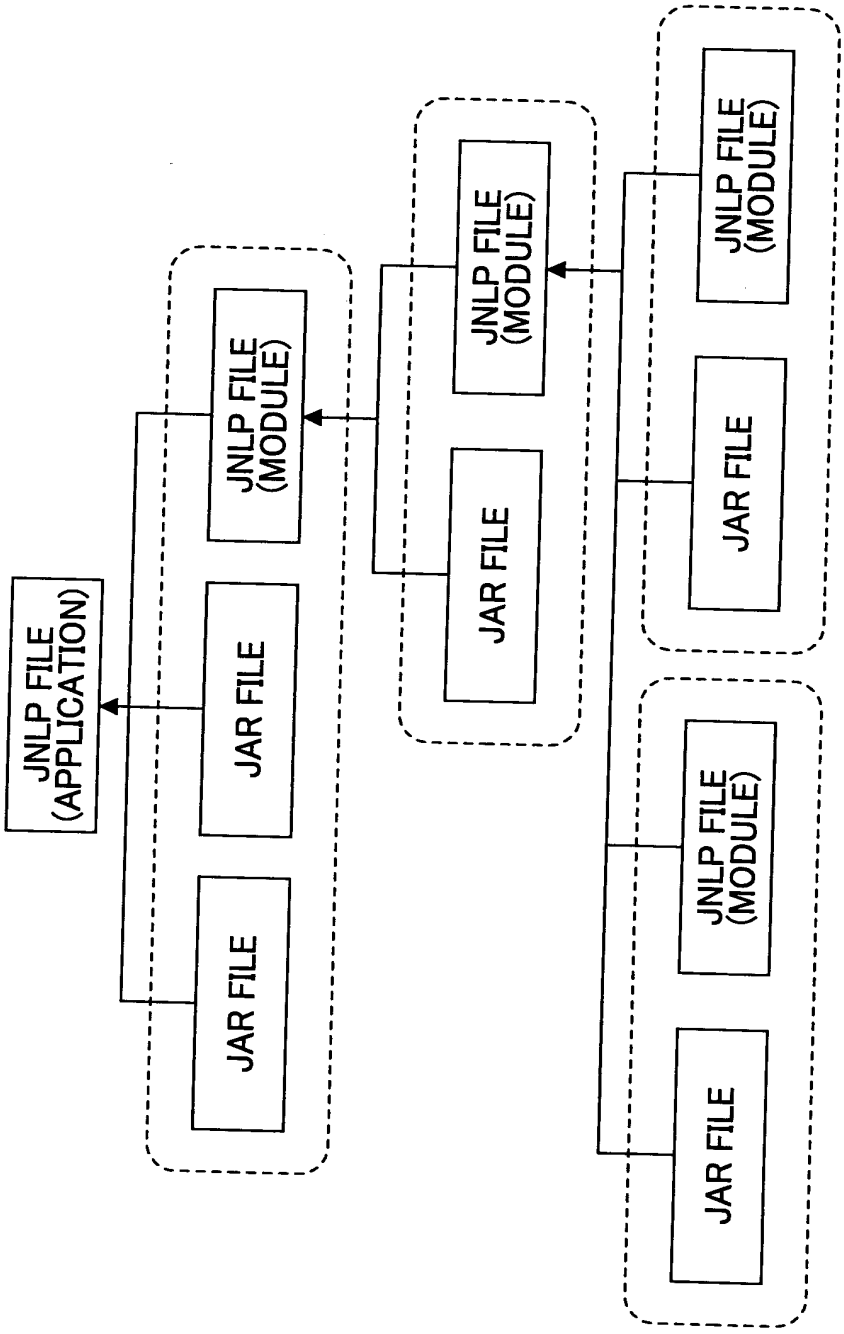

JNLP FILE (APPLICATION)
JAR FILE
JNLP FILE (MODULE)
JAR FILE
JNLP FILE (MODULE)
JAR FILE
JNLP FILE (MODULE)
JAR FILE
JNLP FILE (MODULE)

FIG.12

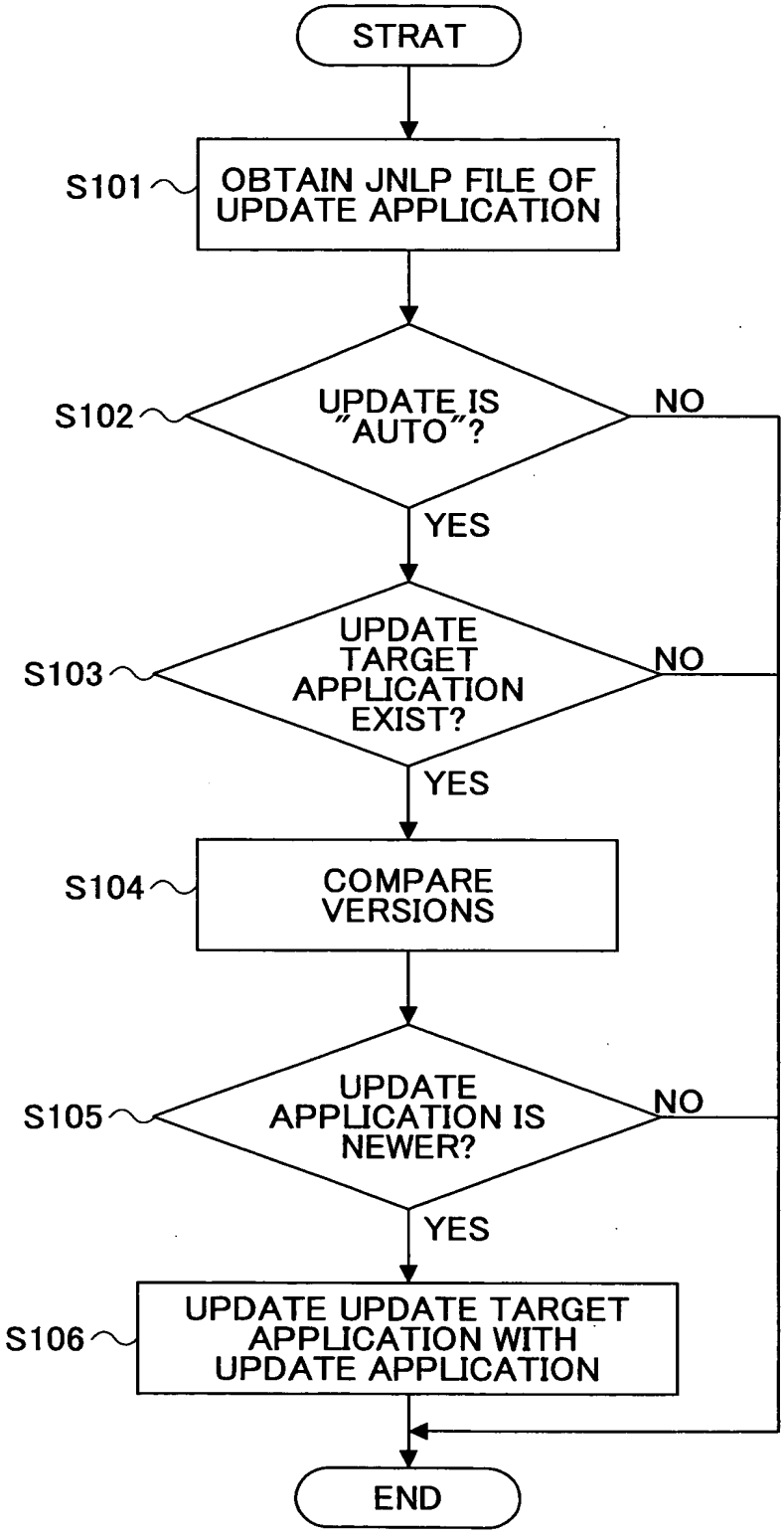

STRAT
S101
OBTAIN JNLP FILE OF UPDATE APPLICATION
S102
UPDATE IS "AUTO"?
NO
YES
S103
UPDATE TARGET APPLICATION EXIST?
NO
YES
S104
COMPARE VERSIONS
S105
UPDATE APPLICATION IS NEWER?
NO
YES
S106
UPDATE UPDATE TARGET APPLICATION WITH UPDATE APPLICATION
END

FIG.13

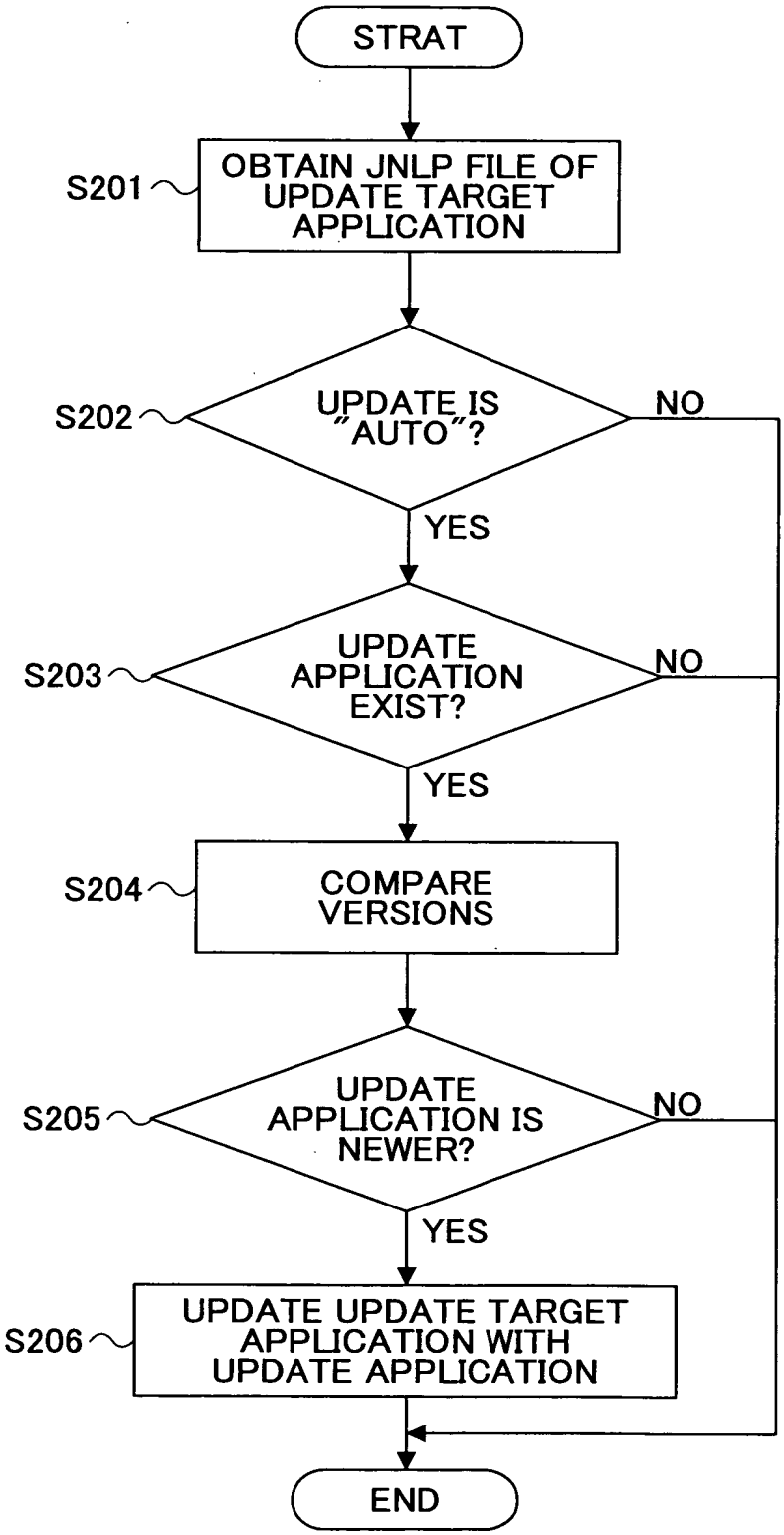

STRAT
S201
OBTAIN JNLP FILE OF UPDATE TARGET APPLICATION
S202
UPDATE IS "AUTO"?
NO
YES
S203
UPDATE APPLICATION EXIST?
NO
YES
S204
COMPARE VERSIONS
S205
UPDATE APPLICATION IS NEWER?
NO
YES
S206
UPDATE UPDATE TARGET APPLICATION WITH UPDATE APPLICATION
END

FIG.14

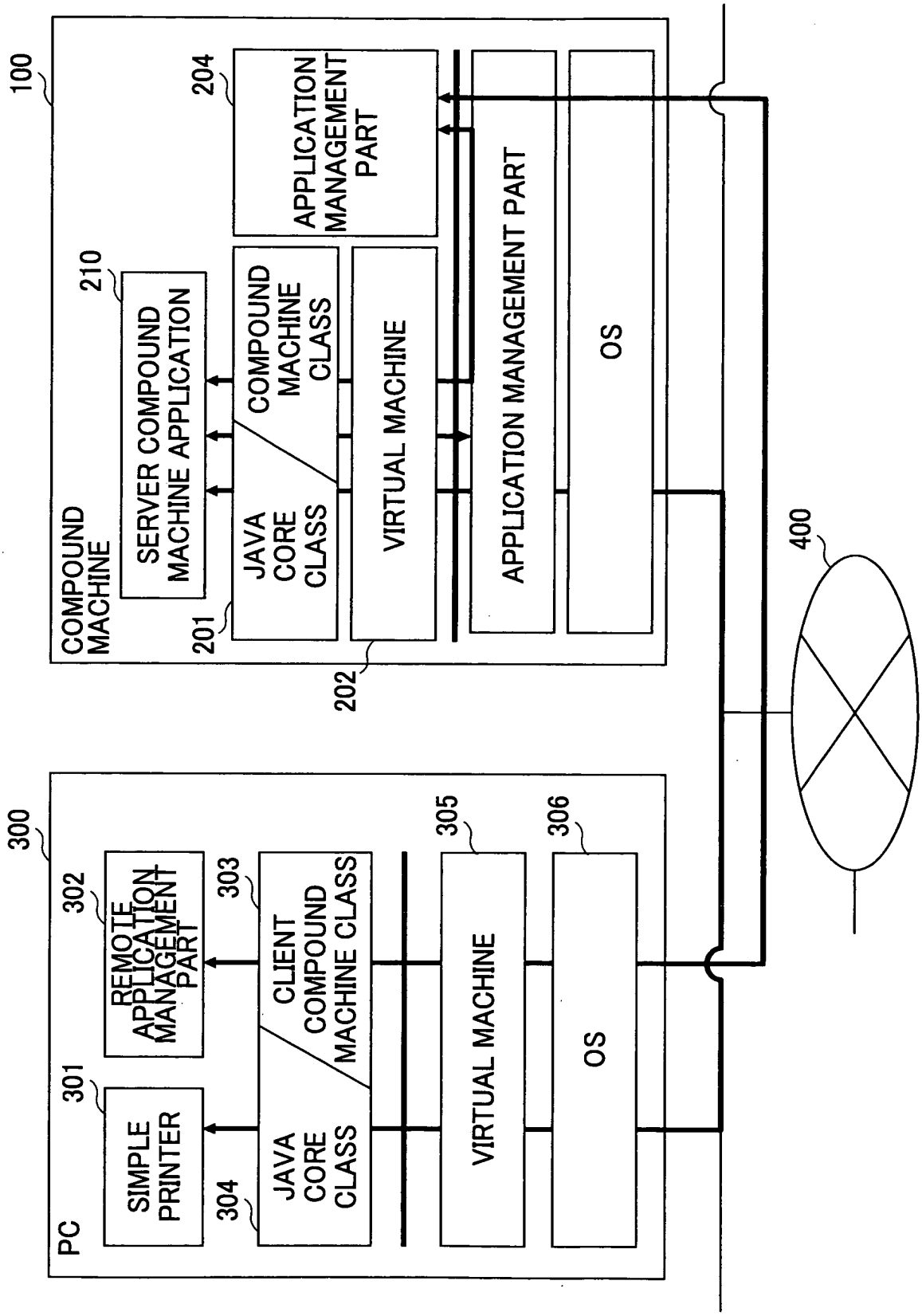

100
COMPOUND MACHINE
SERVER COMPOUND MACHINE APPLICATION
210
JAVA CORE CLASS
COMPOUND MACHINE CLASS
201
VIRTUAL MACHINE
202
APPLICATION MANAGEMENT PART
OS
204
APPLICATION MANAGEMENT PART
400
300
PC
SIMPLE PRINTER
301
REMOTE APPLICATION MANAGEMENT PART
302
JAVA CORE CLASS
304
CLIENT COMPOUND MACHINE CLASS
303
VIRTUAL MACHINE
305
OS
306

FIG.15

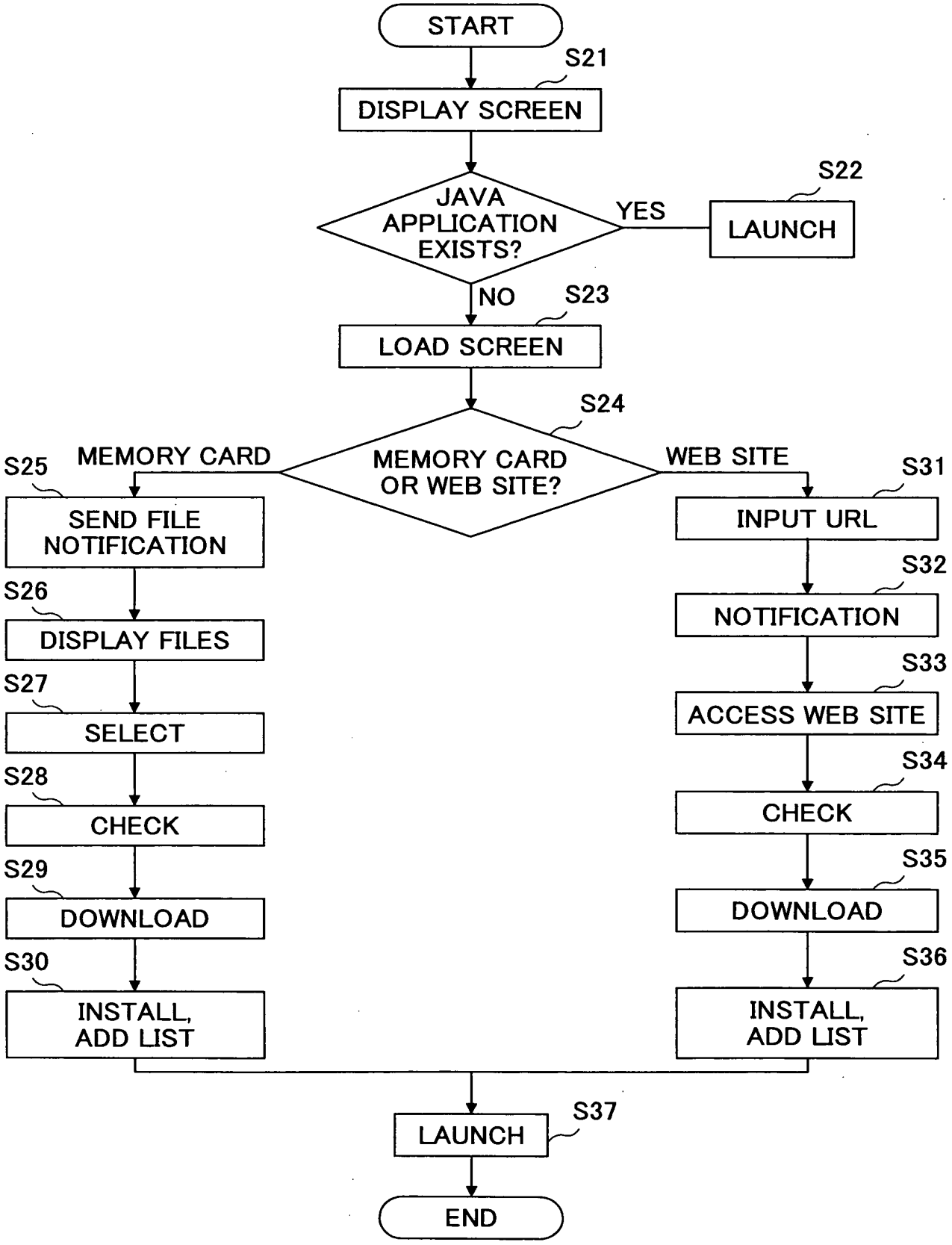
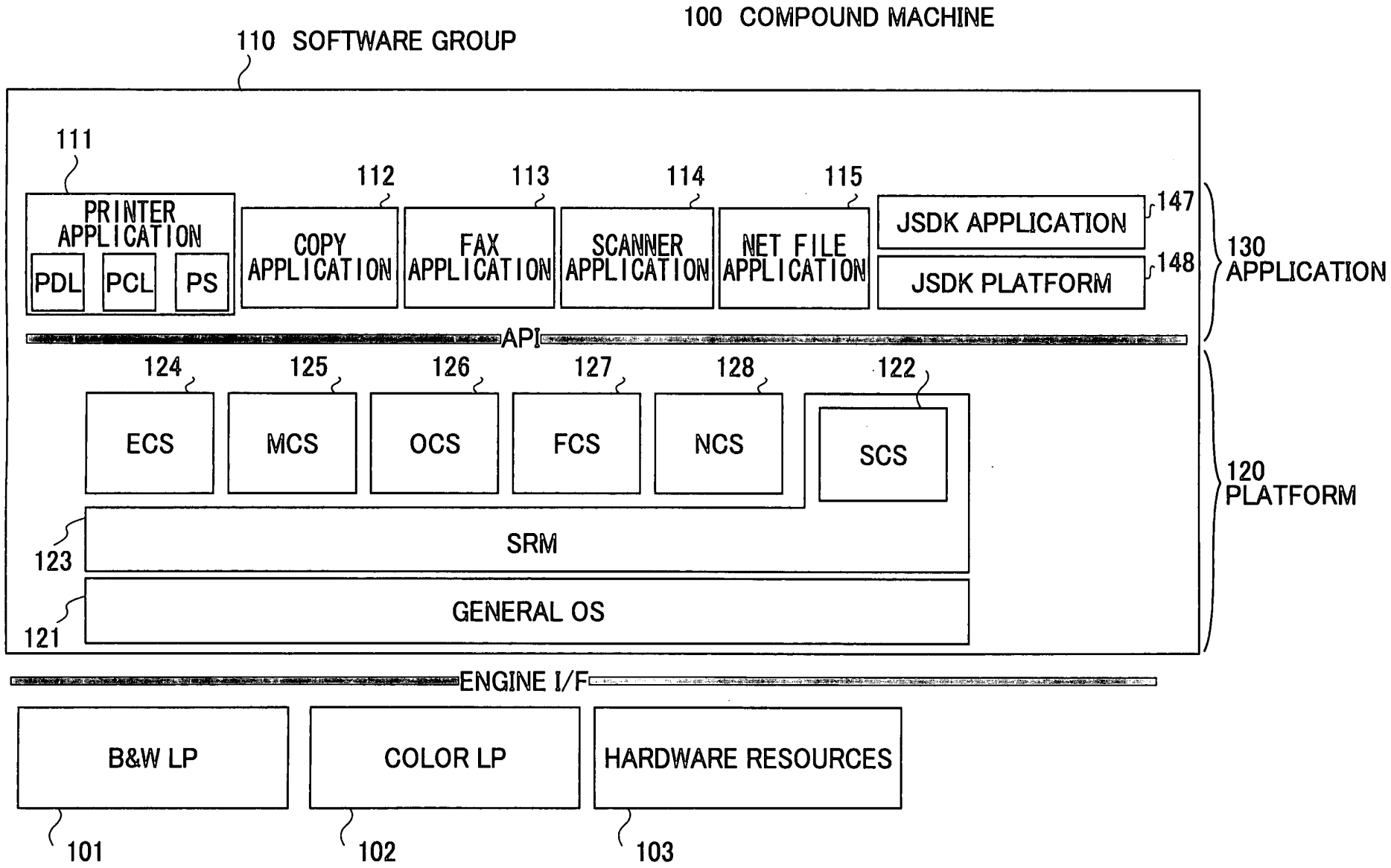

START
S21
DISPLAY SCREEN
JAVA APPLICATION EXISTS?
YES
S22
LAUNCH
NO
S23
LOAD SCREEN
S24
MEMORY CARD OR WEB SITE?
MEMORY CARD
WEB SITE
S25
SEND FILE NOTIFICATION
S26
DISPLAY FILES
S27
SELECT
S28
CHECK
S29
DOWNLOAD
S30
INSTALL, ADD LIST
S31
INPUT URL
S32
NOTIFICATION
S33
ACCESS WEB SITE
S34
CHECK
S35
DOWNLOAD
S36
INSTALL, ADD LIST
S37
LAUNCH
END

FIG.16



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INV: Mitsuo ANDO
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FIG.17

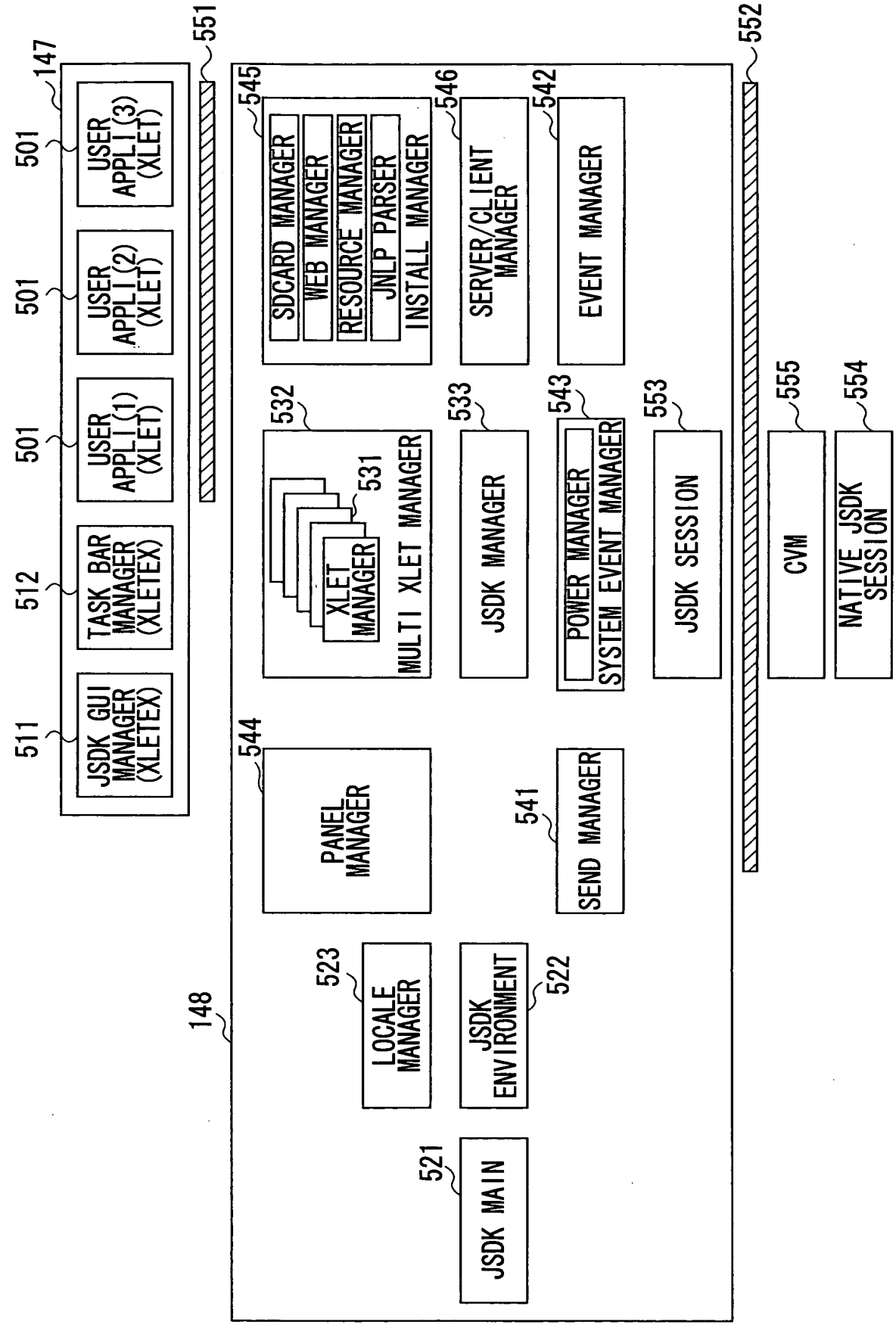

147
501
USER APPLI (3) (XLET)
501
USER APPLI (2) (XLET)
501
USER APPLI (1) (XLET)
512
TASK BAR MANAGER (XLETEX)
511
JSDK GUI MANAGER (XLETEX)
551
552
545
SDCARD MANAGER
WEB MANAGER
RESOURCE MANAGER
JNLP PARSER
INSTALL MANAGER
546
SERVER/CLIENT MANAGER
542
EVENT MANAGER
532
531
XLET MANAGER
MULTI XLET MANAGER
533
JSDK MANAGER
543
POWER MANAGER
SYSTEM EVENT MANAGER
553
JSDK SESSION
555
CVM
554
NATIVE JSDK SESSION
544
PANEL MANAGER
541
SEND MANAGER
523
LOCALE MANAGER
522
JSDK ENVIRONMENT
521
JSDK MAIN
148

FIG.18

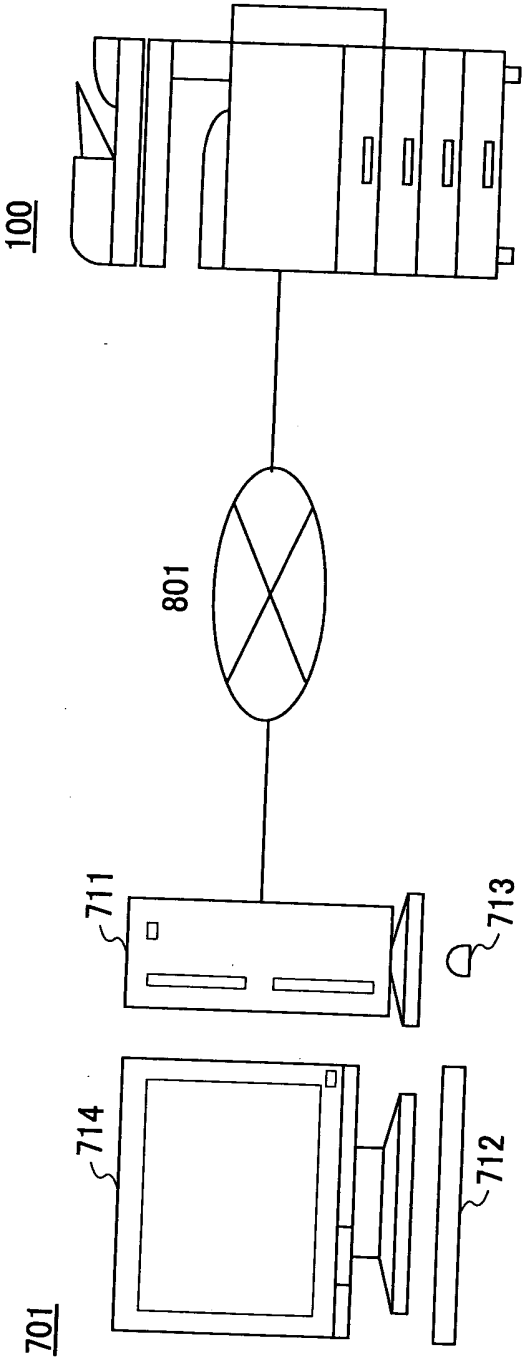


FIG.19

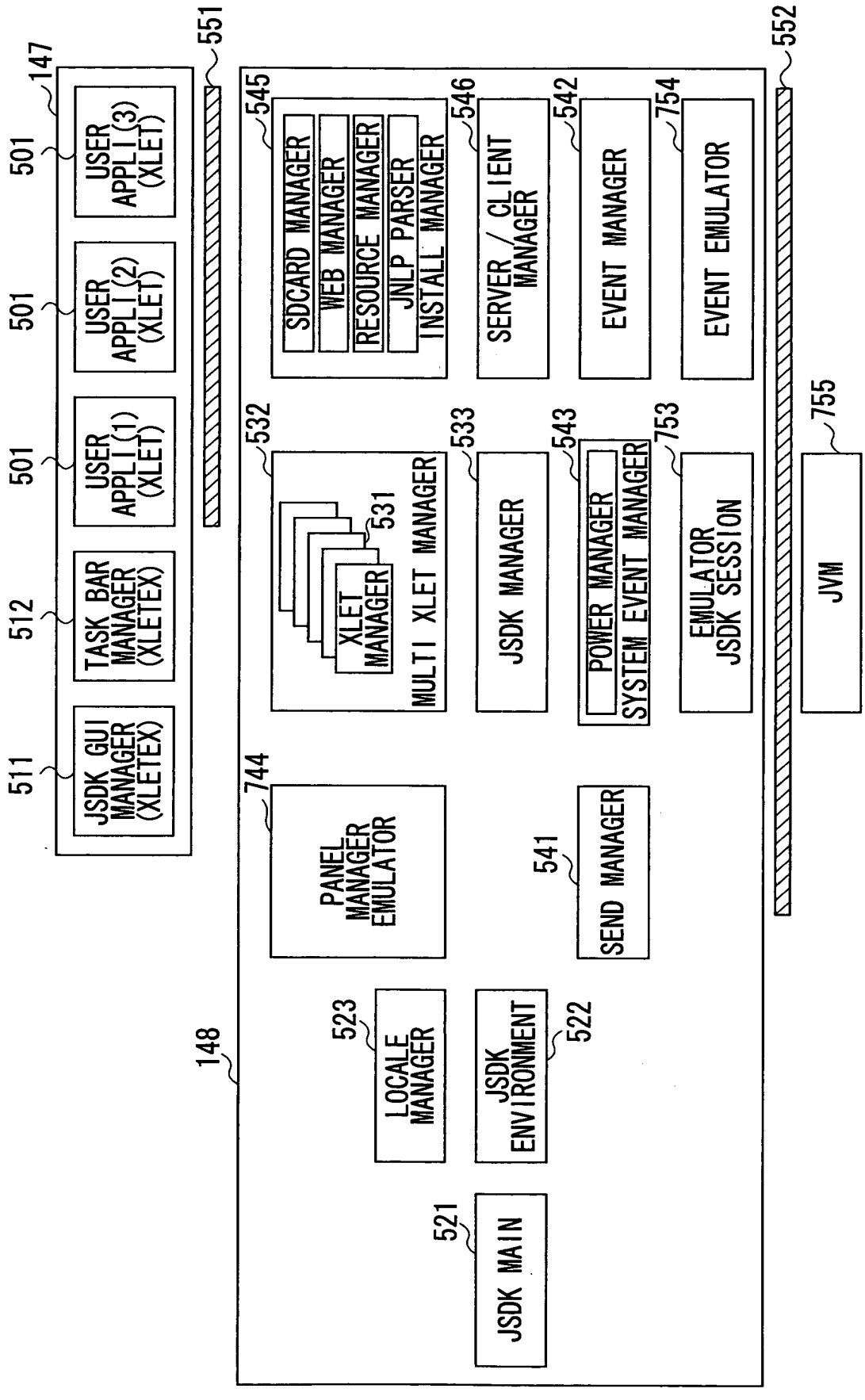
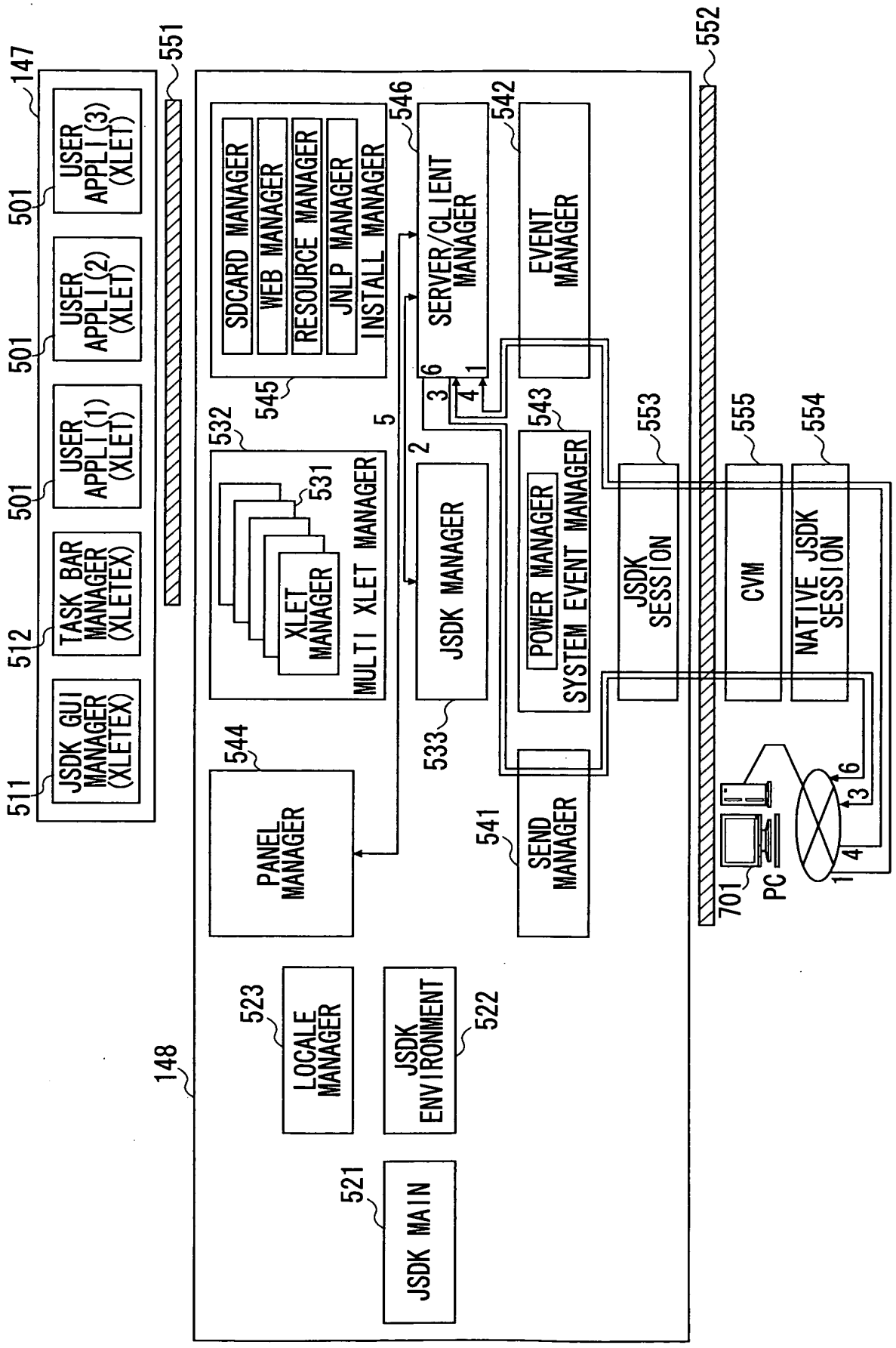

147
501
USER APPLI (3) (XLET)
501
USER APPLI (2) (XLET)
501
USER APPLI (1) (XLET)
512
TASK BAR MANAGER (XLETEX)
511
JSDK GUI MANAGER (XLETEX)
551
552
545
SDCARD MANAGER
WEB MANAGER
RESOURCE MANAGER
JNLP PARSER
INSTALL MANAGER
546
SERVER / CLIENT MANAGER
542
EVENT MANAGER
754
EVENT EMULATOR
532
XLET MANAGER
531
MULTI XLET MANAGER
533
JSDK MANAGER
543
POWER MANAGER
SYSTEM EVENT MANAGER
753
EMULATOR JSDK SESSION
755
JVM
744
PANEL MANAGER EMULATOR
541
SEND MANAGER
523
LOCALE MANAGER
522
JSDK ENVIRONMENT
521
JSDK MAIN
148

FIG.20


147
501
USER APPLI (3) (XLET)
USER APPLI (2) (XLET)
USER APPLI (1) (XLET)
TASK BAR MANAGER (XLETEX)
JSDK GUI MANAGER (XLETEX)
511
512
551
552
SDCARD MANAGER
WEB MANAGER
RESOURCE MANAGER
JNLP MANAGER
INSTALL MANAGER
546
545
SERVER/CLIENT MANAGER
542
EVENT MANAGER
532
531
XLET MANAGER
MULTI XLET MANAGER
JSDK MANAGER
533
544
PANEL MANAGER
POWER MANAGER
SYSTEM EVENT MANAGER
543
SEND MANAGER
541
JSDK SESSION
553
CVM
555
NATIVE JSDK SESSION
554
701
PC
148
LOCALE MANAGER
523
JSDK ENVIRONMENT
522
JSDK MAIN
521
1
2
3
4
5
6